

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for producing polyhydroxyalkanoates (PHAs) in a species of *Saccharum*, said method comprising expressing nucleotide sequences comprising SEQ ID NO:1, SEQ ID NO:4 and SEQ ID NO:7 or nucleotide sequences capable of hybridizing to the complement of SEQ ID NO:1, SEQ ID NO:4 or SEQ ID NO:7 under stringent conditions, wherein the *Saccharum* accumulates PHA at about 1.6% of leaf dry-weight, and wherein PHA accumulation does not reduce total sugar content in PHA producing plants as compared to control plants.

2. (Previously Presented) The method of Claim 1 wherein the species of the *Saccharum* genus is sugarcane.

3. (Previously Presented) The method of Claim 1 wherein the polyhydroxyalkanoate is polyhydroxybutyrate.

4. (Previously Presented) The method of Claim 1 wherein the nucleotide sequences further comprises SEQ ID NO:19 or a nucleotide sequence capable of hybridizing to the complement of SEQ ID NO:19 under stringent conditions.

5. (Currently Amended) A genetically modified *Saccharum* sp. cell comprising a genetic sequence comprising SEQ ID NO:1, SEQ ID NO:4 and SEQ ID NO: 7 or nucleotide sequences capable of hybridizing to the complement of SEQ ID NO:1, SEQ ID NO:4 or SEQ ID NO:7 under stringent conditions, wherein the *Saccharum* accumulates PHA at about

1.6% of leaf dry-weight, and wherein PHA accumulation does not reduce total sugar content in PHA producing plants as compared to control plants.

6. (Original) The *Saccharum* sp. cell of Claim 5, wherein said *Saccharum* sp. is sugarcane.

7. (Previously Presented) The *Saccharum* sp. cell of Claim 5, wherein the polyhydroxyalkanoate is polyhydroxybutyrate.

8. (Canceled)

9. (Previously Presented) A genetically modified *Saccharum* sp. plant comprising one or more cells of claim 5.

10. (Original) Seeds or other reproductive material or propagation material from the plant of Claim 9.

11. (Previously Presented) A polyhydroxyalkanoate polymer or mixture of polyalkanoate polymers produced according to the method of Claim 1.

12. (Previously Presented) A plant based bioreactor system used for the production of a polyhydroxyalkanoate, said bioreactor comprising one or more genetically modified cells of Claim 5.

13. (Previously Presented) A plant based bioreactor system used for the production of a polyhydroxyalkanoate, said bioreactor comprising one or more genetically modified cells of Claim 9.

14. (Previously Presented) The method of Claim 1 wherein the nucleotide sequences further comprises SEQ ID NO:28 or a nucleotide sequence capable of hybridizing to the complement of SEQ ID NO:28 under stringent conditions.

15. (Previously Presented) The method of Claim 1 wherein the nucleotide sequences further comprises SEQ ID NO:31 or a nucleotide sequence capable of hybridizing to the complement of SEQ ID NO:31 under stringent conditions.

16. (Previously Presented) The genetically modified *Saccharum* sp cell of claim 5 which further comprises SEQ ID NO:19 or a nucleotide sequence capable of hybridizing to the complement of SEQ ID NO:19 under stringent conditions.

17. (Previously Presented) The genetically modified *Saccharum* sp cell of claim 5 which further comprises SEQ ID NO:28 or a nucleotide sequence capable of hybridizing to the complement of SEQ ID NO:28 under stringent conditions.

18. (Previously Presented) The genetically modified *Saccharum* sp cell of claim 5 which further comprises SEQ ID NO:31 or a nucleotide sequence capable of hybridizing to the complement of SEQ ID NO:31 under stringent conditions.

19. (New) A method for producing polyhydroxyalkanoates (PHAs) in a species of *Saccharum*, said method comprising expressing nucleotide sequences comprising SEQ ID NO:1, SEQ ID NO:4 and SEQ ID NO:7 or nucleotide sequences capable of hybridizing to the complement of SEQ ID NO:1, SEQ ID NO:4 or SEQ ID NO:7 under stringent conditions, wherein at least one of the nucleotide sequences is operably linked to a maize polyubiquitin (Ubi) promoter.

20. (New) A genetically modified *Saccharum* sp. cell comprising a genetic sequence comprising SEQ ID NO:1, SEQ ID NO:4 and SEQ ID NO: 7 or nucleotide sequences

capable of hybridizing to the complement of SEQ ID NO:1, SEQ ID NO:4 or SEQ ID NO:7 under stringent conditions, wherein at least one of the nucleotide sequences is operably linked to a maize polyubiquitin (Ubi) promoter.